

CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. XXVII JULY-AUG., 1955 No. 4



FIG. 59. *Crassula bystris*, nat. size.



CACTUS AND SUCCULENT JOURNAL

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A NEW MAGAZINE

The Cactus Society of Mexico has issued its first number of a quarterly magazine "Cactaceas y Suculentas Mexicanas." Of special interest are collecting articles by Mr. Dudley Gold and Hermando Mejorada. Dr. Helia Bravo reviews *Neobuxbaumia tetetzo* and describes a new species as *Thelocactus goldii*. The latter is named after our good friend, Dudley Gold, of Mexico City. The 20-page magazine is in Spanish and has 11 photos. The Society is apologetic of the quality of printing but they hope to improve future issues. You may subscribe for four issues for \$2.00, which should be sent to the treasurer D. B. Gold, Aniceto Ortega 1055, Mexico 12, DF.

EDITOR'S NOTE

Since many of our readers could not attend the Convention, we have selected articles from interesting places. For instance Dr. Dyer has taken you on a collecting trip in South Africa and J. R. Brown takes you on a visit to the gardens around San Francisco in California. This issue of the JOURNAL was being published while the Convention was in session so the next issue will report on the doings in El Paso, Texas.

ACANTHOCEREUS ALBICAULIS Br. & R. Although this unusual Brazilian cactus has been known to science since it was described by Britton and Rose in 1920 (in *Cactaceae* 2:125, fig. 187.), its flowers and fruits seem unknown. Since it is present in contemporary collections, we would be interested to learn from our readers if they have any pertinent descriptive or illustrative information regarding its floral or fruit characters.

JOURNAL OFFICE
132 W. Union, Pasadena, Calif.

MORPHOLOGY OF CACTI

Part III, The Fruit and Seeds, is undergoing the final reading of page proofs by Dr. E. B. Kurtz, editor of all three parts of Dr. Buxbaum's monograph.

JOURNAL COLOR PLATES

Dr. Louis E. Blanchard of Ontario, Canada, has aided materially towards the color plates which have been appearing in the JOURNAL. We have several other color plates scheduled for future issues.

NEW JERSEY MEMBERS

Mrs. Rudolph Arp, 99 Mountain Terrace, Clifton, N. J., would like to contact other members in this area.

REVISED LIST

Gates Cactus, Inc., Corona, California, has revised their Jubilee Retail Price List dated as of July, 1955. There are many changes in listings. Send for a copy.

MONOGRAPH ON SUCCULENTS

Handbuch der Sukkulanten Pflanzen—Herman Jacobsen in German. The first volumes of a complete monograph on succulent plants is now ready. Vol. I contains 600 pages and 500 illustrations covering the genera in alphabetical order through *Euphorbia*. Price \$14.00. Vol. II contains 506 pages and 472 illustrations of *Fockea* through *Zygophyllum*. Price \$12.50. Vol. III contains 560 pages and 472 illustrations of *Mesembryanthemums*. Price \$12.25. Please add 30c per volume postage plus sales tax if delivered in California. This monograph on the other succulents will be found most useful—Order from Abbey Garden Press.

132 W. Union Street

Pasadena, California



FIG. 60. Distant view of Blauwberg looking towards the highest point.

A Botanical Expedition to the Blauwberg South Africa

By R. A. DYER

The Blauwberg (blue mountain) is an isolated mountain in the north-western Transvaal in an area reserved for native habitation. While the surrounding country is at an elevation of about 3,500 ft. the highest point of the mountain is 6,714 ft., which is not exceeded for many miles around. Owing to its rather remote location and the difficult terrain, it has been little botanized and the flora of the higher altitudes is still very imperfectly recorded.

Early in January this year, Dr. L. E. Codd, Officer in Charge of the National Herbarium, and I organized a short expedition to the Blauwberg during which we discovered two or three new species and added several other new records. The mere fact that one of the new records for the area was *Huernia whitesloaniana* Nel* will at once rouse the interest of American readers who will call to mind the great work by Alain White and Boyd Sloane on the Stapelieae and Euphorbieae. Dr. Codd was successful with a close up photograph of a plant in flower tightly wedged in a rock crevice at an altitude of about 5,500 ft. (Figs. 59 and 61). In a shallow

sandy depression in the rock next to *H. whitesloaniana* were found several specimens of an unidentified species of *Anacampseros* allied to *A. bremekampii* (Fig. 62). Dr. Codd is seen at work in Fig. 63. The *Anacampseros* has a tuberous root from the apex of which are produced several short thin branches with small scale-like leaves and minute terminal flowers. The site of these discoveries was about half way up our trail and still a few miles distant from the highest point of the mountain.

To return briefly to the beginning of the diary: there are two main approaches to the Blauwberg's highest point, one a steep and rather difficult climb with a pack, and the other an arduous march of about 10 miles. The routes meet on a saddle-like plateau at an elevation of about 5,200 ft. where it is advisable to set up a camp in order to give ample time for scientific study of the vegetation of the final 1,500 odd feet. We took the second route in order to benefit by the advice and assistance of the Rev. Brunke who controls the Leipsig Mission at the foot of the mountain.

With the influence of the Rev. Brunke we recruited a dozen native women porters to carry

*See "The Stapelieae," Vol. III, pg. 1172 for color plate.



FIG. 61. Enlarged view of Fig 63 showing the *Anacampseros* which is allied to *A. bremekampii*. Blauwberg near Mohlakeng plateau.

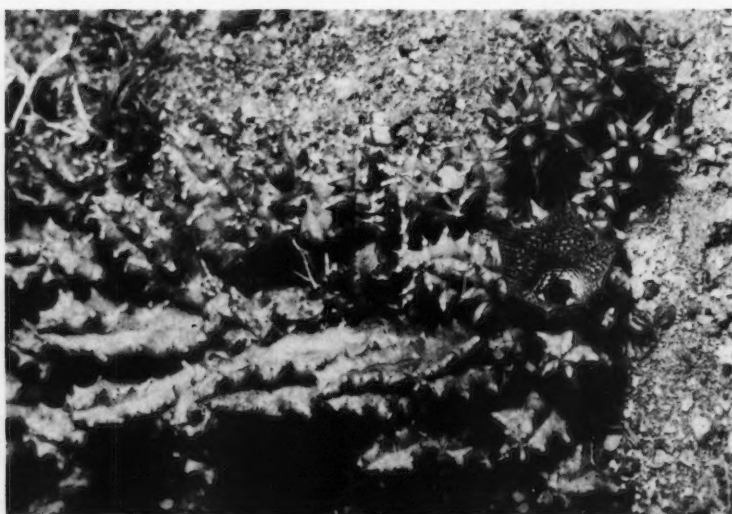


FIG. 62. *Huernia whitesloani* Nel, exact size.



FIG. 63. *Huernia whitesloani* (left) and an *Anacampseros* allied to *A. bremekampii* (right) in their habitat—Blauwberg, N.W. Transvaal. The former was growing in a rock crevice and the latter in shallow sandy soil.



FIG. 64. Blauwberg expedition with native women and girls as porters loaded for the journey.



FIG. 65. *Cissus quadrangularis* on rocks and trees at Leipsig Mission, Blauwberg.

our equipment and provisions (Fig. 64). Most of the able bodied native men of the district have permanent employment and only the women and girls are available for casual jobs such as ours; their endurance and sense of balance, with loads on their heads, are remarkable. More often than not they chant as distraction from the task in hand.

At the foot of the mountain many impressive specimens of the succulent tree, *Euphorbia ingens*, are to be seen and sometimes these are draped with the branches of *Cissus quadrangularis* (Fig. 65). A couple of thousand feet up the

mountain through dense low forest there is a clearing with a group of *Euphorbia cooperi* and here there is a grand view of the valley below (Fig. 66).

The next stage of the climb passes the kraal (domain) of the chieftainess of the Malaboch native tribe who expects a courtesy visit and present before any party proceeds. Having fulfilled our duty in this matter we advanced to the camping site on the plateau known as Matlakeng, which means "the beautiful green place."

Before reaching here, however, we had passed over the large rocky outcrop which sheltered



FIG. 66. Looking out towards Leipzig Mission from Blauwberg at about 4000 feet.
Euphorbia cooperi in the foreground.



FIG. 67. *Caralluma melanantha* on Mohlakeng plateau, Blauwberg.

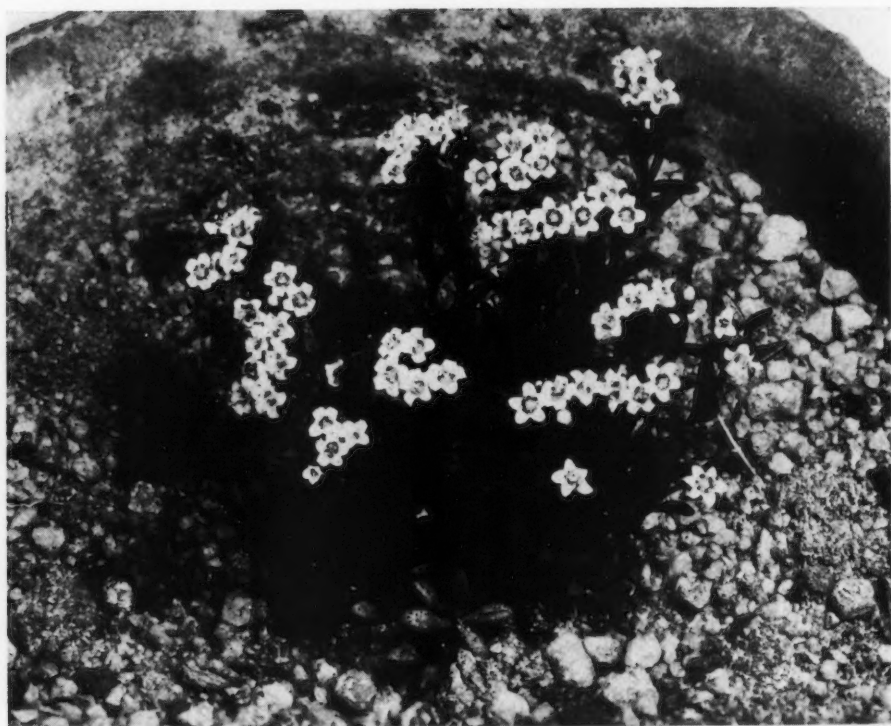


FIG. 68. A new *Crassula*, closely allied to *C. setulosa*, from rock crevice at top of Blauwberg. Approx. nat. size.

Huernia whitesloaniana, the undescribed species of *Anacamperos* mentioned above, *Crassula argyrophylla*, *Aloe arborescens*, a "maculate" species of *Aloe*, *Cotyledon*, *Kalanchoe* and *Adromischus* species. Most of these were met again on outcrops on the Matlakeng plateau or on rock ledges of the surrounding cliffs. In addition, an excellent specimen of *Caralluma melanantha* was found in flower and photographed by Dr. Codd (Fig. 67). We were disappointed in locating only one species of *Ceropegia* during the whole trip and it has yet to flower.

Camping near us on the saddle was an expedition from the Transvaal Museum whose main interest was in the fauna of this fascinating area. They had enlisted the help of old Moquatedi, a most useful old native, whose wide knowledge of the flora and its place in native life and lore was freely shared with us.

The highest dome of the Blauwberg is frequently clothed in mist during summer and violent storms are common. The night before our arrival the whole mountain side had been transformed into countless waterfalls by a cloud-burst. We were favoured with a brilliant day

for our climb to the summit. It was not to be expected that we would find succulents in abundance in a habitat of such high rainfall but our strenuous climb was rewarded near the trigonometrical beacon, which marks the highest point, by the discovery of four more species of *Crassula*, one closely allied to *C. setulosa* and possibly undescribed, and a species of *Othonna* with a tuberous rootstock.

Crassula setulosa is an alpine species common on the Drakensberg range and is accepted as a very variable species in growth form, but it is obvious that some of the specimens so far lumped under that name in herbaria, will have to be given separate specific rank. The little plant shown in (Fig. 68) was brought back from the Blauwberg in the first stage of flowering and was photographed a few days later while being painted for reproduction in *Flowering Plants of Africa*. The plant forms small mats of young branches, each rosette of which eventually—and always several together—produces a flowering branch 4-6 cm. tall. It differs from typical *C. setulosa* in the shape and reddish colour of its glabrous leaves.

During our return to camp down the ravines



FIG. 69. Blauwberg beacon and Johannes, Rev. Brumke, Dr. Codd, Tristan Dyer.

Aloe arborescens and a species of *Aloe* in the "maculate" group, were frequent and an undescribed species of *Tylophora*, previously recorded from the neighbouring Zoutpansberg range, was found in the clefts of rock. *Tylophora* is in the family *Asclepiadaceae*, which, as

most readers will know, includes the *Stapelieae*.

It will be some considerable time before the collections made on this trip have all been classified but even the few records mentioned here are good evidence that this should not be our last visit to the Blauwberg.

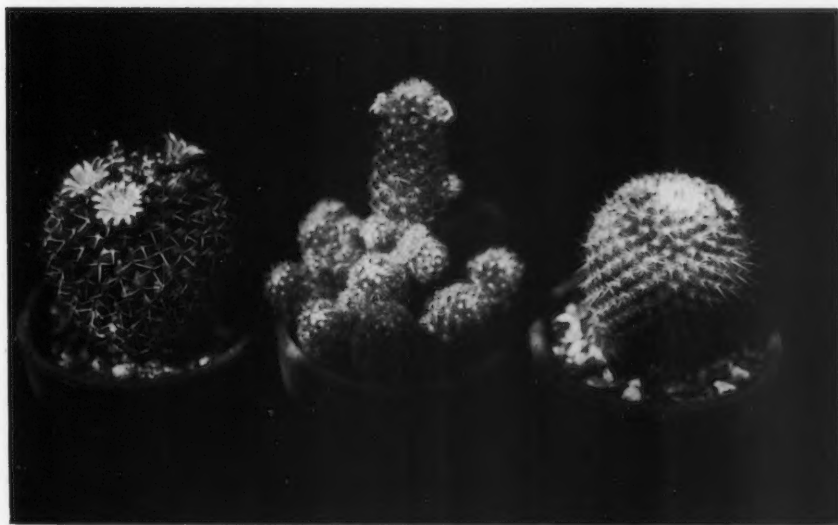


FIG. 70. *Mammillaria elegans* var., *M. elongata*, and *M. magnimamma* are easy to flower in pots. Look for flowers from March on.



FIG. 71. *Echinomastus johnstonii* var. *lutescens* from a Kodachrome, clearly shows the new flowers are greenish and turn to yellow the next day.

Echinomastus johnstonii var. *lutescens* - New to Nevada

By GEORGE G. GLADE

During the Memorial Day weekend of 1953 while searching for *Coryphantha arizonica* (Engelmann) Br. & R. in the area of Cima, Calif., the writer also visited the area around Searchlight, Nev., hoping to obtain habitat photographs on Kodachrome of *Echinomastus johnstonii* (Parry) Baxter.

Before beginning this field trip, "California Cactus" by E. M. Baxter, 1935, and Vol. 3 of "The Cactaceae" Br. & R. were studied. Mr. Baxter states "—near Shoshone, but is much less common than farther east in Nevada—." On page 142 of Vol. 3 of "The Cactaceae," a photograph was shown which was taken by M. E. Jones at Searchlight, Nevada, April, 1907. As the main part of the search for the *Coryphantha* was to be in the vicinity of Cima, Calif., the Searchlight area was chosen for the *Echinomastus*.

After spending a day and a half looking for the *Coryphantha* with no success, we left for Searchlight to look for the *Echinomastus johnstonii* (Parry) Baxter. Five plants were found about 3 miles west of the city but with no flowers. We continued on into Searchlight and south of the city found a nice colony of plants. These had flowered and were with ripe fruit. The dried flower remains were persistent. In

studying these remains, I was sure they had never been "deep red to pink" as stated in Britton & Rose. Both dried and after soaking in water, they indicated a yellow flower. No pictures were taken at this time but it was decided that future search for the *Coryphantha* should also include a check of the Searchlight *Echinomastus*.

The morning of May 22, 1954, found Mrs. Glade and myself again in the Cima, Calif., area in search of *Coryphantha arizonica* (Engelmann) Br. & R. This time we found it ⁽¹⁾ and after a series of Kodachromes were taken, we went on to Searchlight, Nev., to check the *Echinomastus* but with the same results as the previous year. The plants were again with ripe fruit. About 25 or 30 plants were examined in a scattered area and all flower remains indicated nothing but yellow flowers.

Shortly after returning home, we bought a copy of "Arizona Cactuses" by W. Taylor Marshall. In this bulletin under *Echinomastus*, Mr. Marshall lists *Echinomastus johnstonii* (Parry) Baxter var. *lutescens* Parrish. He shows a picture on page 90 but at the bottom of page 89

⁽¹⁾ Journal of Cactus & Succ. Soc. of America Vol. XXVI, page 177.

states, "northeast of Congress Junction and elsewhere in Mojave County, Arizona, but not reported from California or Nevada." This increased our interest. It was decided that the following year we would begin in late March and make a trip to Searchlight every second week until we found them in flower. In re-checking the photo in Britton & Rose taken in 1907, it was noticed the plants were in flower in April.

This year on March 26th we were again at Searchlight, Nev., on the first 1955 check trip of this *Echinomastus*. Nearly every plant had buds but no flowers as yet. April 9th found us on the second check trip but only one plant was in flower. It bore out the conclusions of the previous two years of being yellowish. One more trip would be necessary to arrive at the peak of the flowering season in order to find out if any color other than the greenish-yellow were present.

The third and final trip was made three weeks later on April 30th with Jaye and Fred Mayall of Burbank, Calif., accompanying us. This date proved to be the peak as all plants were in flower. The majority of plants had from six to eight flowers while some had eleven and twelve and one had fourteen counting buds and flowers. The smallest flowering plant observed was hardly more than two inches high. From observation of collected plants of the species and of observation of the var. *lutescens* in the field, the latter is a much more prolific bloomer with considerably larger flowers. All flowers were the same chartreuse with the reddish-brown eye—a very pretty flower the first day of opening. The first day they have the green tint to the yellow petals and the eye is of very deep color. The oldest flowers lose the green tint and the red-

brown eye fades considerably. The back outside cover to Arizona Highways of December, 1947, is a reproduction of a picture taken by R. C. and Claire Meyer Proctor of Arizona which shows this fading from the new to the old flowers.

A series of Kodachrome habitat photos were taken both of groups and of closeups of plants and flowers. No effort was made to determine the limits of this colony but an effort was made to learn if it extended in all directions from Searchlight. Search was made only near the highway during this peak of the flowering season. They were found for a distance of six miles along highway 68 leading west to Nipton, Calif., and for three miles east on the road from Searchlight to Lake Mohave. We found them along highway 95 for two miles north and from two to three miles south of the city. Well over an estimated 200 plants were observed and without exception all were of the same chartreuse color.

The fact that "The Cactaceae" states for the species "deep red to pink" yet published a picture of the Searchlight plants leads one to believe that Mr. M. E. Jones did not state the flower color of the plants when he sent the picture to Britton & Rose. Since the second edition of Mr. W. Taylor Marshal's bulletin "Arizona's Cactuses" dated July, 1953, states "—not reported from California or Nevada," the writer feels it appropriate to record the *Echinomastus johnsonii* (Parry) Baxter var. *lutescens* Parrish as being also in Nevada.

EDITOR'S NOTE: It is interesting to note the vast amount of field work that is being done to run down uncertain details in plant descriptions. For example, the foregoing article was written after Mr. and Mrs. Glade travelled close to 3000 miles before they were certain of the facts presented.



FIG. 72. *Parodia auricentra*, *Gymnocalycium damsii*, and *Mammillaria wildii* flowering in April.



FIG. 73. *Echeveria longissima* somewhat reduced. Photo by Myron Kimnach.



FIG. 74

A small part of the cactus garden at the University of California, Berkeley.
Notocactus leninghausii in the middle foreground.

AROUND SAN FRANCISCO BAY

J. R. BROWN

The "Bay Area" is a familiar term often used by Californians when referring to the area surrounding San Francisco Bay, including the cities of San Francisco, Oakland, Alameda, Berkeley, Richmond and others.

The Oakland Flower Show, one of the "big" flower shows of the country, held this year from April 29th through May 5th, is the mecca for many visitors to this area and offers at the same time an opportunity to visit the gardens of those who may have similar plant interests.

A big flower show is always colorful and this one was the usual lavish spectacle. Among the many large exhibits, that staged by the Cactus and Succulent Society of California, the society of the "Bay Area," was a very fine group exhibit indeed, but exhibits of individuals drew my attention more than the large exhibit. Some remarkably fine specimens were on display, showing an exceptional perfection and coloring and

it was a great pleasure to see them, most of them flawless in appearance. The close proximity to the ocean breezes seems to produce a beautiful coloring in the succulents up here. The naming

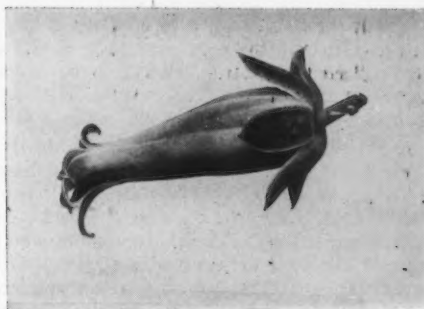


FIG. 75

Echeveria longissima, flower nat. size.



FIG. 76

Senecio crassissimus.

A young plant approx. 1/2 nat. size.

of the plants seemed to be rather carelessly done, probably due to "last minute rush."

Not far from Oakland is the Botanical Garden of the University of California at Berkeley. This garden occupies a picturesque site at the upper part of Strawberry Canyon and under the guiding hand of its director, Dr. T. H. Goodspeed, has developed into a very interesting one. Through the many plant hunting expeditions to the western parts of South America undertaken by Dr. Goodspeed, the flora of those regions is prominently represented in the "Garden." The scope of some of these expeditions can be gleaned from that very interesting book, "Plant Hunters in the Andes" which was written by the Doctor. Not the least of the plants from South America are the cacti and other succulents, especially the cacti, comprising a large and finely grown collection, the greater number of which were collected by Paul C. Hutchison on an expedition to South America in 1952. The cacti of other regions are also very well represented.

A botanical garden, at least to me, always seems to be a rather entrancing place; as most of us cannot travel to distant lands, the next best thing is a visit to a botanical garden, especially one located in the milder regions where many of the more or less tender exotics can be grown outdoors. You wander around and are constantly being surprised and delighted by the sight of some plant you may have read of but never seen, or some beautiful flower may sud-

denly meet the eye arousing memories of other days, altogether a very pleasant and happy manner in which to spend a few hours.

During my visit the weather was somewhat chilly with very overcast skies, this, in conjunction with the failure of many flowers to open because of the grey skies, did not permit of much photography. A fine group of *Oroya peruviana* were flowering well, also noticed *Ferocactus stainesii*, *Lobivia johnsoniana*, *Notocactus leninghausii*, *Echinocereus rosei*, the brightly attractive *Chamaecereus sylvestrii* and many others.

The steep slope above the cactus area is being developed into "African Hill" and with some sunshine this area would have been quite colorful as a great number of South African plants flower at this time, but lack of sunshine prevented most of the "Mesembryanthemums" from "showing off." Noticed many of the "Mesemb." flowers which were open in the dull weather were white in color. It was interesting to see a very old plant of *Aloe plicatilis* in flower, judging from the size of its stem "an old veteran" which must have survived some pretty rough winters this far north. Close by was a beautiful plant of *Aeonium spatulatum* with reddish flower stems, reddish-green stem leaves and orange-yellow flowers, a lovely picture. Also nearby was an old plant of *Senecio crassissimus*, this Madagascan was flowering well and was about 2 feet in height, the leaves were quite purplish in color. Many of the plants on this hill had recently been transplanted and no doubt caused their "hardly established" appearance. Surprised to see an old clump of *Senecio scaposus* which had been growing outdoors for several years; many plants are evidently much harder than one supposes. *Rocoea coccinea* was represented by several large masses, this is one of the loveliest of Cape plants, but is not so happy in our hotter southern part of the state. Numerous Aloes were in evidence, *Aloe striata*, *A. aristata*, *A. transvaalensis*, *A. klinghartensis* among those in flower. This hill is also planted with *Crassulas*, *Cotyledons*, *Kalanchoes*, *Adromischus* and so on. I noticed the dwarf *Crassula bystris*, an interesting *Crassula*, the leaves somewhat resembling those of the Mesemb., *Delosperma echinata*, the tiny yellow flowers are insignificant.

In the large lath house many of our western Sedums as well as many of the Mexican species seemed to be particularly flourishing. Noticed a mat of *Sedum diversifolium* literally smothered in its rich yellow flowers. Beautiful mats of *Sedum spathulifolium* and its subspecies *pruinsum*. This subsp. is a beautiful plant in its home on the Northern California coasts, as it



FIG. 77
Kleinia berrianus, nat. size.

may be seen hanging in sheets from the rocks fronting the ocean, the leaves colored a bright cherry-red, evidently due to the constantly saturated salt atmosphere.

Along the length of the main greenhouse is a window-box-like arrangement about waist high from the ground and planted with an assortment of succulent plants. This looked like a very fine idea, as the plants could be easily looked at and their growth was exceptional. It was here I noticed a plant known to me for a long time, namely, *Kleinia gompophylla*, or as I notice in Jacobsen's recent work, *Senecio berreianus*. I first had this from James West about 1933, who had obtained this with some other plants for the garden from Hamburg Botanic Garden. Here it was in flower, and I show the end of a creeping stem with flowers. In habit it resembles *Kleinia radicans* and the flowers are similar. Upon seeing the photograph, your editor remarked that the leaves looked like tiny watermelons.

The main greenhouse, which is the heart of the succulent collection, contains innumerable plants which would interest the most exacting of succulent enthusiasts. It wasn't long before I noticed a superbly grown specimen of *Echeveria longissima* and upon seeing this plant I would be inclined to say that it is the aristocrat of the

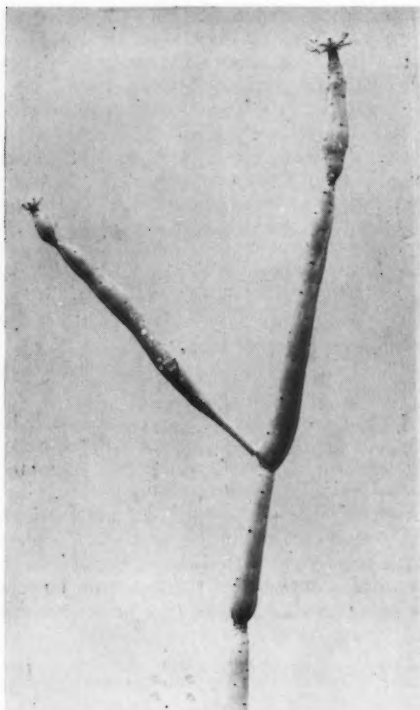
genus. Mr. Kimnach was kind enough to give me a photo of the plant which is reproduced here. However, this photo must have been taken in a prior season, as at the time I saw it the plant had two flower stems. It stood about 9 inches tall from the soil to the top of the flowers and each flower was about $1\frac{1}{2}$ inches long. The entire plant has remarkable substance, and has a subdued sheen which is carried throughout its parts from the rosette to the tips of the perianth. The spreading green sepals, the coral-red tube fading to clear green in the upper part and the flaring green perianth tips and green filaments give this *Echeveria* a very distinguished appearance. I do not think it will ever be a common plant, a little bit fussy to grow well.

I might say here that Myron Kimnach has charge of the growing of the succulents, a most pleasant and skilful plantsman, the appearance of the plants bears witness to his ability.

Probably the plants from Madagascar incite the greatest curiosity in the visitor, as the plants from that great island have seemed to be shrouded in mystery for the most part, but now we see a good representation before us. The



FIG. 78
Euphorbia didiereoides, approx. $\frac{1}{2}$ nat. size.



Alluaudias remind one of our American Fouquierias, at least as seen in their younger stages of growth. *Alluaudia ascendens* was beginning to grow vigorously, very interesting. Didiereas, Pachypodiums, Euphorbias are also in evidence. Two of the interesting Euphorbias are shown here, *Euphorbia didiereoides*, the top of a flowering stem, and the upper part of a plant of *Euphorbia onoclada*, the flowering of this is very distinct, the peduncles radiate like the spokes of a wheel from the tops of the stems and it is very curious to see the growth of the stem continue upwards through this. The joints of this latter Euphorbia become elongated under greenhouse cultivation. A group of *Euphorbia lophogona* in flower looked particularly well, the pink bracts making this quite attractive. Many Madagascar Kalanchoes are to be seen as well as some of the small Aloes. *Aloe albiflora* was showing its white flowers. This a pretty little plant, the flowers of a milky-white color and somewhat campanulate in shape.

Some amazing plants from East Africa are also to be seen, Monadeniums, Pachypodiums, Dorstenias, and probably the finest of the Kalanchoes, *Kalanchoe dawsoni*, this was a beautiful

FIG. 79

Euphorbia onoclada, approx. $\frac{1}{4}$ nat. size.

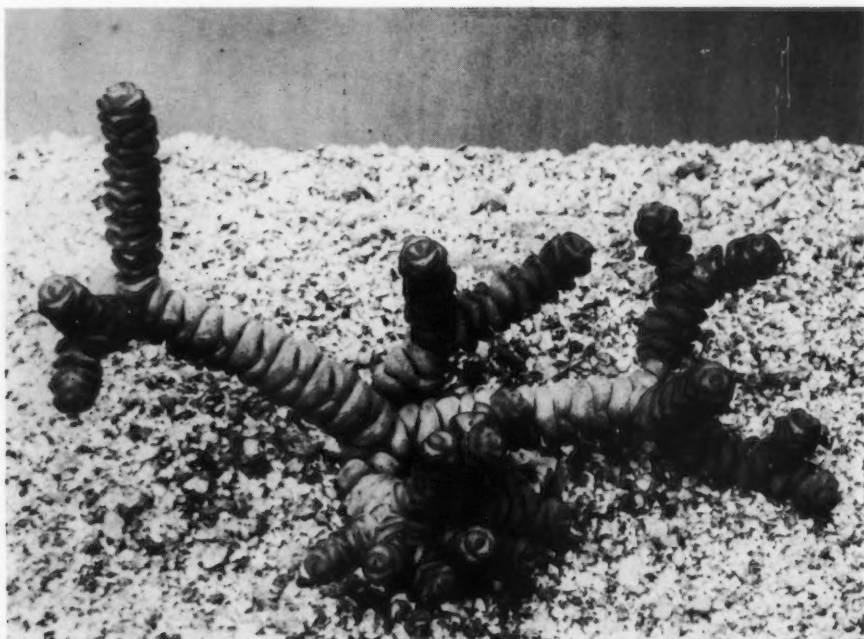


FIG. 80

Crassula marnieriana, nat. size.

specimen and while not in flower the appearance and foliage were outstanding, very large somewhat orbicular leaves of a pleasing soft color.

The collection of *Orostachys* (Sedum) made by Dr. Reid Moran is also in this house. This indefatigable worker takes every opportunity to investigate the plants wherever he may be, and this collection of oriental Sedums is amazing, plants which for the most part are only known from herbarium sheets. I was also privileged to see his color slides of some of the plants in their native habitat.

The collection of *Adromischus* is of great extent as Mr. Hutchison is working very intensively with them. The leaf coloring, marking, and shape is of fascinating interest. In size varying from the tiny *Adromischus nanus* to larger subshrubby species.

The *Crassulas*, noted for the tremendous range of variation in shape and size, are well represented and while many are planted on "African Hill," many of the smaller and rarer plants are under glass. One which attracts great interest is *Crassula marnieriana* and a photo of a small plant is reproduced here. The smaller more or less columnar forms are always attractive, such as *Crassula arta*, *C. columella*, *C. biconvexa*, *C. columnaris* and *C. deceptrix*, to name a few. Other genera of South African succulents are well represented, *Cotyledon*, *Apicras*, *Haworthias*, *Stapeliads* and *Ceropegias*.

A great collection of cacti is also housed in this greenhouse, many of them type plants or from type localities. The beautiful collection of rarer and highly succulent "Mesembs.," *Lithops*, *Conophytum*, *Dinteranthus*, *Gibbaeum*, *Fenestraria*, *Imitaria*, *Ophthalmophyllum* and so on, is housed elsewhere.

One morning we set out to visit Mr. Al Irving at Alameda and ran into quite a group who are very interested in succulent plants. Mr. and Mrs. H. M. Butterfield. Mr. Butterfield is the well known horticulturist and writer and is interested in *Echeverias*, saw one of his recent hybrids which was quite unusual and distinctive. Mr. D. R. Small of San Leandro, also interested in *Echeverias*, and the Skinners, Murray and Don, Don was judging at the Oakland Show and no doubt was taking the opportunity to obtain *Echeverias* for his collection. Returning to Mr. Irving, who is regarded in this area as having a very green thumb, and his collection, mainly comprised of South African succulents is quite extensive and well grown. One evidence of his growing skill was easily noticed by the writer, as not so long ago I gave him a plant of a *Gasteria* (which I notice is named *Gasteria batesiana* in Jacobsen's recent book), I

had had this plant for several years but it was very slow in developing as it should, not having a greenhouse to help it along, however in Mr. Irving's greenhouse it had developed into a perfect specimen. This is a handsome little *Gasteria*, probably one of the best and appears as if jewelled, the sparkling pattern and color ornamentation unlike any other *Gasteria*. It was collected by the late V. S. Peers of Capetown, but no locality was given.

From Mr. Irving's garden we headed across the bay to San Francisco to visit Mr. J. W. Dodson, who is now located high on a hill overlooking the entrance to San Francisco Bay. Despite the upheaval due to the moving of so large a collection from his former home, his *Haworthias* looked very well. He is very busy among them, rearranging and so on and trying to find a solution to the different light and atmospheric conditions encountered in this new location. His collection of *Haworthias* keeps growing and there is always something new to be seen in this fine collection of a keen enthusiast.

On another day I had the pleasure of visiting a very old friend, Dr. M. W. Morgan of Richmond whose enthusiasm never wanes for the unusual in plants, whether they are succulent or otherwise. His garden is a striking example of how much can be tucked away in a small garden, every inch is occupied by plant life. The central plant in his patio is a fine old plant of *Sedum morganianum* which was named in his honor and which at this time bore its reddish flowers at the end of every pendant stem. Nearby was an old plant of *Sedum morganianum* x *Sedum stablii*, a cross of the Doctor's own making and having some of the characters of both parents. Hybridizing is one of the Doctor's hobbies and he has made many interesting crosses. *Crassula falcata* has been used a great deal with the intention of getting this brilliant flower color into other less colorful *Crassulas*. The 2 small greenhouses are simply overflowing with plants of every description and many which are seldom seen in collections. You will see giant *Oxalis* from South America side by side with *Adeniums*, *Pachypodiums*, *Cissus*, *Euphorbias* from Africa, orchids, ferns and so on, a glorious confusion and all doing well. At this time a plant of *Adenium multiflorum* was in flower, the flowers breath-taking in their beauty. The closest comparison I could think of was a finely colored flower of a *Gloxinia*.

We again crossed the bay to San Francisco to see Mr. Eric Walther and it was a great pleasure to meet him after a lapse of so many years. Mr. Walther is in charge of the Strybing Arboretum which is situated in the Golden Gate Park. This

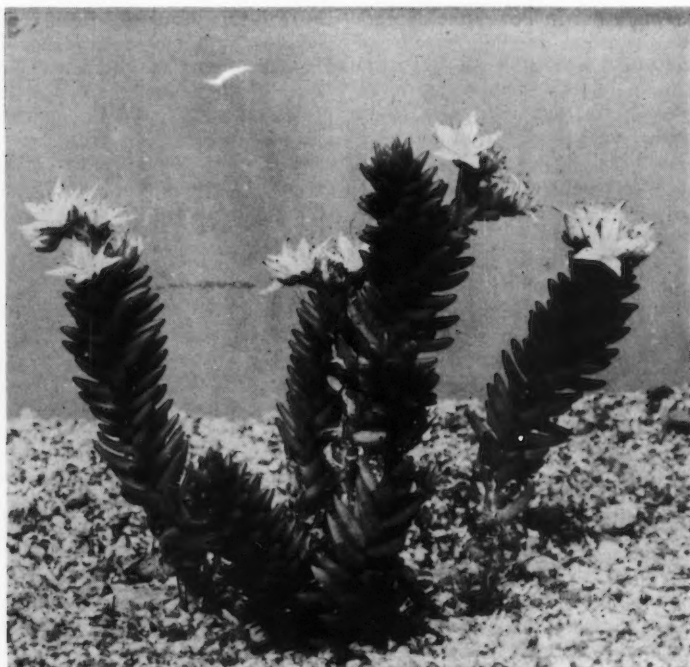


FIG. 81
Villadia batesii, nat. size.

world famous Arboretum is a beautiful place and contains many unusual trees and shrubs. I noticed in one of the open spaces a garden of low slopes planted in bold splashes of color, the whole representing a multicolored carpet. The areas occupied by the different plants probably were at least about 30 square feet or more. Low growing succulents were much in evidence, Sedums and Echeverias in variety. A fine mass of a pinkish color was *Villadia batesii*, this is an excellent ground cover. The color is given by the reddish tips of the bright green, acute leaves and the pink buds, although the face of the petals is white on the open flower, the mass color is pink. The stems are wiry and the leaves firmly attached, I was quite interested as its use seemed new to me, a small plant is shown in

one of the accompanying illustrations. This treatment of the lower growing succulents in bold masses is becoming more prevalent and displays them to great advantage. Mr. Walther is quietly continuing his studies of the genus *Echeveria* and I know his papers on this genus are greatly appreciated when he publishes one.

Many other gardens could be visited in this area but time and circumstances did not permit, but we have had the pleasure of mentioning some of the highlights of the trip.

In conclusion I would like to express my great appreciation to Mr. Paul Hutchison, Botanist in charge, who gave me the freedom of the Botanical Garden at Berkeley, and who in every way, despite a busy schedule, did everything possible to make my visit to the "Bay Area" enjoyable.

BOOK REVIEW

HANDBUCH DER SUKKULENTEN PFLANZEN, by Hermann Jacobsen; volume 1, *Abromeitiella* to *Euphorbia*, 614 pp., 519 illustrations and 1 colored plate; Gustav Fischer Verlag, Jena, Germany.

The first volume of a most imposing work on succulents has just been published in Germany. Those familiar with Mr. Jacobsen's earlier one-volume "Succulent Plants" know how it helped fill a need for a comprehensive work dealing with succulents other than cacti, and despite its faults and omissions it has remained the most complete of its type. For many

years Jacobsen has been compiling a vast card-index of data concerning all known succulents aside from cacti and has fortunately found a publisher willing to issue it as a greatly expanded version of the earlier book. Volume one includes short descriptions of practically all succulent species of the genera *Abromeitiella* (a little-known terrestrial bromeliad) through *Euphorbia*, omitting *Mesembryanthemaceae*. Volume II (*Fockea* to *Zygophyllum*) is soon to be published, while volume III, entirely devoted to the *Mesembryanthemaceae*, will complete the work.

Two obvious limitations will retard its acceptance

in this country—it is in German and it is expensive, the set costing a probable 30 dollars. But as an edition in English is not likely for a long time, and as the work contains many valuable photos and lists of species, the serious student or collector should not fail to acquire it. We shall review the first volume here and comment briefly on the others as they appear.

After a foreword introducing succulent literature and botanists of the past, the work continues with short chapters on the habitats of succulents, their morphology and ways of life, and their practical uses. A detailed account of their cultivation follows, the chapters on importing and propagation being especially good. Descriptions of species and a listing of their synonyms comprise the rest of the volume; these follow the style of the earlier book but descriptions are more complete and are given for perhaps ten times the species.

In the foreword Jacobsen discusses the difficulty of deciding upon a border-line between succulent and non-succulent, implying that some will be disappointed in finding a few genera omitted. Of course it would be impossible to define such a boundary to everyone's taste, but many readers will be surprised to find described such "succulents" as *Salicornia* and *Criothum*, halophytes of the seashore, or *Acanthosicyos*, a thorny, non-fleshy shrub. On the other hand one searches in vain for certain genera containing more genuine succulents: *Plectranthus* and *Aeolanthus* of the Mint Family; *Dischidia* (*Asclepiadaceae*); *Encholirium*, *Deuterocohnia* and *Fascicularia*, bromeliad genera as succulent as the included *Puya* and *Hechtia*; *Calandrinia*; *Harpagophytum* and *Rogeria* (*Pedaliaceae*); orchid genera such as *Pleurothallis* and its relatives, containing dwarfed highly-succulent species; *Ficus* and *Boussingaultia*. Some of these are not extreme succulents but one would prefer to see such an ambitious publication erring on the side of overinclusiveness.

If these genera have been ignored other names are introduced to succulent collectors for the first time: *Hydnophytum* and *Myrmecodia*, epiphytes of the coffee family with swollen stems inhabited by ants; *Lobelia*, *Hymenanthera*, *Trematosperma*, *Ipomoea*, *Ullucus*, *Hypericis* and *Tumamoca*. Such intriguing names make one impatient to see their description in the next volume. Numerous other genera included will also be unfamiliar to many enthusiasts, though they have been mentioned in the more inaccessible literature.

Nearly all known succulents are described, but in the case of some genera lack of space seems to have precluded a more complete treatment. Thus only 2 out of the 60 or so *Brachystelmas* are mentioned, while many interesting species in *Adenium*, *Bulbine*, *Ceropegia* and *Dyckia* are ignored. The botanical treatment of each genus is based on the available literature, following the standard monographs if such exist, and varies in completeness and correctness as does that literature. For example, Reynold's recent concept of the South African *Aloes* is summarized, but descriptions of species native to other lands are largely derived from Berger's work of 1908. The sections on *Echeveria* and *Dudleya* incorporate the conclusions of published papers by Walther and Moran, but because their monographs of these genera are still in manuscript form and therefore inaccessible to him, Jacobsen describes many species considered by them to be mere varieties or synonyms. Von Poellnitz works on *Adromischus*, *Anacampseros*, *Cotyledon* and *Haworthia* are followed despite their errors and a species-definition now considered radical by many botanists. But one must work with existing tools, and Mr. Jacobsen has scoured the literature with admirable energy and discrimination.

Unfortunately he has omitted certain features from the book which would have greatly increased its value—and, admittedly, its cost. Keys to genera or species are completely lacking, making it difficult to identify an unnamed plant; an *Aloe*, *Agave* or *Euphorbia*, for example, would have to be matched with hundreds of incomplete descriptions arranged alphabetically rather than systematically. Nor is much attempt made to refer one to more complete descriptions; the bibliography is scanty and, while the author of each species is cited, place of original publication is not. For exact determinations, therefore, one must still depend on more technical works. Of course the 500 photos, ranging from fair to excellent, are of considerable aid in identification.

A few errors and misconceptions are inevitable in a work of this scope. Due to a common European confusion about Lower California, some of the Mexican *Dudleya*s are stated to be native to the U. S. A. *Thompsonella* species are listed under *Echeveria* whereas most authorities consider those genera distinct. The five *Echeveria*s from Southern Mexico which Alexander described in 1941 were somehow overlooked. Several new taxa are described by Jacobsen in *Cotyledon*, *Euphorbia* and *Crassula* but are mostly *nomen nudum*, being without Latin diagnoses.

Three interesting, if questionable, statements made by Jacobsen deserve comment. First it is claimed that the correct name for the Crown of Thorns is really *Euphorbia splendens* after all and not *E. milii* as we have lately been calling it; while *E. milii* is the earlier name it is properly applied to a hybrid between *E. splendens* and *E. splendens* var. *bojeri*. This reasoning is difficult to accept because no details or proofs are given—we hope these will be presented soon. Jacobsen also states that the plant long known as *Bowiea volubilis* must henceforth be called *Schizobasopsis volubilis*, while *Chamaealoe africana* is correctly named *Bowiea africana*! This is entirely incorrect, and the more familiar names are still the proper ones, for this case of homonymy was resolved some years ago when *Bowiea* Harv. ex Hook. f. was conserved over *Bowiea* Haw. by the Botanical Congress. Finally, according to Jacobsen, the varicolored *Echeveria boveyi* so popular here is really the var. *variegata*, the type name being properly applied to the unmarked form sometimes encountered as a sport or seedling; yet the original description of *E. boveyi* clearly applies to the variegated form.

Browsing uncritically through the volume one is struck by the many interesting and unfamiliar species pictured from the famous Marnier-Lapostolle gardens in France. Such initiative in introducing plants is very gratifying to see. Most of the innovations are from Madagascar and those pictured include *Alluaudias*, *Didierea*, the peculiarly-jointed *Cynanchum perrieri* and *Euphorbia onoclada*, numerous *Euphorbia*s related to *E. lophogena*, and some choice dwarf *Aloes* such as *A. bakeri*, *A. albiflora* and *A. parvula*. Some of these plants have recently been introduced to the United States, but the French are obviously far ahead of us. The text and habitat photos dealing with *Adeniums* and *Adenias* will hopefully make these fascinating plants better known to collectors here, while mention of the Californian *Coreopsis gigantea* may waken interest in a succulent little known even in its home state.

Aside from its few limitations (for which the economics of publishing are partly responsible) this work is certainly to be recommended to any serious enthusiast of these plants, whether he can read German or not. It is concise, useful and well-illustrated. Perhaps some day these qualities will be more widely appreciated in an English-language edition.

MYRON KIMNACH

Flowering Periods of Cacti

I noticed the request in the Jan.-Feb. issue of the JOURNAL, for records of blooming dates kept on cacti and succulents. In 1954 I kept a record of my plants for the first time in the eight years I have been collecting them. In my records the "blooming period" means from when the first bud opened until the last bud set, had bloomed, so there may be a few days or a week when there was no flower open between the two dates. I have over 250 cactus and a few succulents. These are all grown inside during the winter months on a large table near south windows, with the temperature usually kept from 55° to 65° F. From the latter part of April to the last of September I grow them outside in a wooden frame 4 by 4 feet square and 12 inches deep and filled part way up with sand. The cacti in clay pots are plunged to their rims, glazed pots just sit on the sand. The frame is protected from hail and rain storms by four storm windows wired together at the peak to make a sort of greenhouse that is open on the east and west ends. If the sun is overly bright and hot, I use lath frames also, over the windows and open ends. The grasshoppers made fine meals off some of my succulents towards the end of summer, so this year I plan to use screens over the open ends.

This picture, a part of my collection, was taken about the last of April, 1954. The plant hidden under the large flower is *Thelocactus bicolor*; the large *Parodia aureispina* above and to the left of it, had 6 blooms open at once which lasted 7 days. The other two plants in bloom are *Gymnocalycium quehlianum* and *Lophophora williamsii*. A few other buds on different plants can be seen.

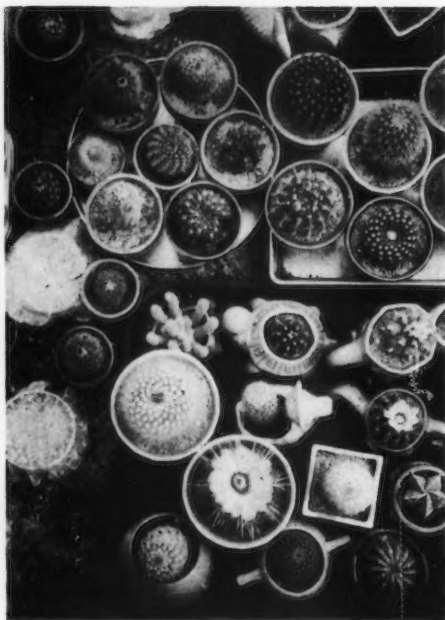


FIG. 82

MR. AND MRS. JOHN L. VANINETTI
North Idaho Indian Agency
Lapwai, Idaho.

Blooming dates of cacti at Lapwai, Idaho:

- Gymnocalycium bruchii*, 1 flower, pale pink
March 18-20
- G. damsii*, 6 flowers, pure white
June-September 2
- G. quehlianum*, 1 flower, light pink
April 25-27
- G. mihanovichii*, 6 flowers, pink and cream
July 7-September 1
- G. friedrickii* (?), 2 flowers, rose pink
June 12-19
- G. venturianum*, 10 flowers, pinkish red
May 22-September 4
- G. mihanovichii*, 3 flowers, greenish cream
August 9-13
- Notocactus submammulosus*, 4 flowers, yellow
June 2-June 27
- N. scopi*, 6 flowers, medium yellow
June 23-29
- N. ottonis*, 2 flowers, clear yellow
June 10-August 3
- Rebutia pseudodeminuta*, 10 flowers, bright red
June 30-August 28
- R. minuscula*, 8 flowers, brilliant red
April 11-May 1
- Parodia sanguiniflora*, 2 flowers, deep red
May 27-June 5
- P. aureispina*, 7 flowers, bright yellow
May 28-June 4

- Thelocactus bicolor*, 7 flowers, deep cerise
May 18-August 28
- Chamaecereus silvestrii*, 1 flower, brilliant red
May 21-22
- Lophophora williamsii*, 8 flowers, pale pink
May 6-August 18
- Mammillaria boccosana*, 7 flowers, pale peach
June 10-August 28
- M. wildii*, 27 flowers, greenish white
July 10-September 28
- Astrophytum myriostigma*, 3 flowers, pale yellow
August 23-September 5
- Echinopsis polyancistra*, 1 flower, pure white, fragrant
June 15
- E. kratochviliana*, 5 flowers, creamy white
July 7-July 18
- Hamatocactus setispinus*, 5 flowers, yellow
June 23-September 8
- Echinocereus baileyi*, 1 flower, lilac pink
June 15-18
- E. rigidissimus*, 1 flower, lilac pink
May 20-21
- Setiechinopsis mirabilis*, 2 flowers, pure white
July 17
- Mammillaria kewensis*, 3 flowers, cerise
October 16-29
- M. albicans*, 6 flowers, greenish white
October 6-23
- M. schiedeana*, 12 flowers, greenish white
October 5-November 16

Seed Raising

Notes of the lecture given by Mr. Boarder to The London Cactus Club.

This is the most fascinating part of the hobby. There is nothing to touch it. We are all fond of plants, but if you have raised one from seed there is a much greater thrill when it flowers and you feel that there is something which you have watched and nursed from a tiny seed.

I want to go fully into the question, because it is not so easy as it would appear on the surface, or why is it so many people don't succeed? Then, how can you get them to flower? People say, "I have followed your cultural notes, but I cannot get them to grow," or "I cannot get them to flower," or "They do not grow like yours." I have repeatedly given my methods, and I have written about them, but still there seems to be something lacking in the way they are grown. I do not know what it is. The only thing I can suggest is that some detail has been left out. So many people think that it does not matter if they leave out minor details, and that it cannot make a difference. However, *something* makes the difference! otherwise there is no reason why everybody should not be able to grow and flower cacti from seed as I do.

My own greenhouse is just an ordinary house. All these plants have had down to about 32 or 34 degrees at times. They have never been in a very high temperature during the winter. I do not believe in forcing in the winter. The seedlings get the warmth, but I do not keep them growing in a stove atmosphere. You could get them a terrific size, but you do not want to get the plant away from its natural shape and hardness. It must be in the small details that the difference comes. Some people say, "You have got green fingers," that is all nonsense. There is no such thing. Anybody can grow things the same as anybody else. See to the little details. They must make all the difference.

Lots of people say, "How large should a plant get in a certain time." A lot depends on the way you are growing the plant. It is possible to get a *Mammillaria* seedling to be as large as an acorn by the autumn, but often you will sacrifice spines and quality for quantity.

I am going to go through the whole detail of seed-raising from the start to when they are potted up as mature plants.

First of all the seed. You want fresh seed if you can get it, though you do not know how old it is when you buy it. Whether they mix it or not I do not know. All come up from my own plants' seeds. I have been growing from seed for twenty-five years and I have a cactus which I started with in 1905, and it still flowers, I have been growing cacti ever since. That is about fifty years. I have been raising seedlings consistently for the last twenty-five years, and during that time I have learnt a lot, and I have a lot to learn. Some of the cacti you should leave alone, but there are plenty more which are quite easy to grow and flower. Several species of *Mammillarias* you can grow from seed and flower a year after sowing. *Mammillaria longiflora* you can flower in fourteen months. It has a flower $1\frac{1}{2}$ " across, and the flowers will be $1\frac{1}{2}$ " across on a tube like a trumpet. There are several other *Mammillarias* you could flower the year after sowing the seed. *Schiedeana* is quite an easy one. The majority of *Mammillarias* I can flower in two years, and every year afterwards. There is no reason why you should not get them to flower.

Echinocactus grusonii you cannot expect flowers if ever. There are many types of cacti you can get to flower: *Rebutias*, *Parodias*, *Lobivias*, *Notocactus*, *Gymnocalycium* all flower very well from seed, and I

find I can flower plants from seed much better than I can from imported plants.

Many of you perhaps have not had too much to do with imported plants. They used to come over like a mushroom, no roots, brown instead of green, spines all broken, and we were supposed to get them growing and up to show condition. I have had those plants, but many hundred and thousands of them that were brought to this country died. They were chopped up, all the best roots left behind, jammed into baskets, loaded on a mule and taken across the prairie, packed in a storing shed, sent to the embarkation sheds, stored again in a boat, down below, for weeks and by the time we got them they were spoilt. There are some alive today but for every one alive today there are a hundred dead. I have flowered these plants, and have got seed, and I have raised plants from them, in the same environment all the time. After growing in Mexico and South America it is a big shock and change when they are transferred from that climate to ours. The conditions are so different. You have to try and imitate the climates of countries as far apart as Peru and Oklahoma.

We have quite a cool climate, and hope for the best by bunching all together in the greenhouse. It is a fact that there are plenty of very good cacti that you can raise from seed and flower early. It is my experience that plants raised from seed in this country will flower better than imported plants. I have had plants in flower in two years and seed, and had good show specimens. Very often if a plant has a check even if only for a month or so, the growing centre of the plant will dry and then when it does grow again you will get a fresh false growth appearing in the centre and you will have a mark round the plant.

Any spine that you knock off, will never grow again. If you knock off the whole areole that will never grow again. That is why you should never handle plants at an exhibition.

We must do all we can with seedraising to get up to perfection. That is the way to get good plants and good flowering plants. I bought seed from a dealer only about a fortnight ago, and that seed is germinating 90%. Whether it is all true to name, I have to take a chance. You cannot always blame the dealer. Someone has sold him those seeds from Mexico, and you cannot tell by looking at all the seeds. You cannot pick out, and you have to take a lot for granted, but even if you do not get all the names, do not worry. There is more fun in growing a plant. I do not concern myself so much with names. For instance, since I started again after the war I have already over 200 different *Mammillarias*. There are many different varieties. There are so many variations between them that they cannot name them. Years ago things were fairly simple, we had 21 genera, and then Dr. Britton made it 124. Do not worry about the name as long as you have the plant, names can be studied later when you have mastered the art of growing.

You must trust quite a lot to the dealer with freshness. *Mammillaria* seed and many other cactus seeds will last. Some are black and some yellow. Some of the yellow ones will not last so long. Before the war I saved 15,000 seeds to start with again after the war. It was so long before I could make another start. The black seeds lasted almost indefinitely. So some seeds will last a number of years, though I do not think with cacti they germinate so well as when they are fresh. Some of the *Mesembryanthemums* will germinate better when they are a year or two old.

You have got the seed. The next things is what you are going to plant them in. I do not believe in wooden boxes. As a rule the cactus seeds will be a small pinch and you will get about a dozen seeds. If you get half to germinate that is good enough. If

you are going to use boxes you are always running up against that trouble of mildew and fungus and all sorts of diseases that come from the wood. Again, with the box you often find the wood will warp and run away from the soil. They are not half as good as pots. I use half-pots, 4" across and about 2½" to 3" deep. You see the difference in the depth when you compare with the ordinary pot of that size. These are more shallow, and absolutely ideal for sowing seedlings. I do advise pans in preference to any wooden boxes.

The next thing to do with the pans is to soak them for 3 to 4 days if they have been used before, and give them a good scrubbing with strong permanganate of potash, so that the pans are clean and sterile.

The best soil to use with the least trouble to yourself is the John Innes Seed Compost. Seeds will germinate in almost anything: sand, blotting paper, peat, vermiculite. I have best results with the John Innes Seed Compost, which I believe can be bought from your Club. It is quite a good medium, and I cannot find anything better, but I usually sieve it. I make a sieve with four sides of a box and a piece of perforated zinc. Sieve about half of the mixture and separate the fine from the coarse. Cover the bottom hole of the pan. It does not matter about a lot of drainage. I can grow cacti without any drainage at all, anyone can if they are careful with the watering. This drainage business is overdone. All you want is a piece of charcoal or a crock, and then cover the bottom with granulated charcoal. It is easy to get, and cheap, easy to handle, does not cut you, and is not hard like flower-pot crocks. I do not have anything except charcoal at the bottom. Take your sievings, the coarse part that does not pass through the sieve is put at the bottom of the pan for about 1". Now put in some unsieved J. I. Seed Compost.* Finish up the top ¾" or 1" with fine sievings. So you have the fine at the top, ordinary, coarse, and drainage. It wants to be slightly moist when you sow. The difficulty with these composts is that there is peat in them, and if the peat gets dry it takes a lot of damping. You can put 3 or 4 tablespoons of water on it when it is dry and in five minutes it has drained away and it will be underneath the pot. Although the top looks moist it will be dust dry underneath. You have to be careful how you water. To the bushel of J. I. Seed Compost you have 3 to 4 ounces ground chalk or limestone, 1½ ounces super phosphate, 2 parts loam, 1 part peat, 1 part coarse sand. If you are going to immerse the pan in water for a long while and lift it up so that the water runs out, you are going to lose a lot of the effect of the chemicals.

Have the soil nice and moist, not wet, just that damp so that it will ball together and leave your hands fairly clean. Do not think you can damp it and use it straight away. Leave it for one or two hours and the moisture will soak into the peat and loam and have a uniform dampness. If it is damp, you will find that by spraying the top you will get it sufficiently moist.

When you are ready with the soil in the pans, divide them up. To put about a dozen seeds in a pan of that size would be sheer waste and there is no need to use one up for one kind of seed. Never use wood strips, little strips of glass are good. I always use glass if I am dividing up a pan into four. My greenhouse is 20' x 9', and I am full up again this year. I have so many kinds to sow that I have divided those quarters again with little celluloid labels, so that I have sown eight different kinds in one pan. There is plenty of room—ten or a dozen seeds in each compartment. Lay the labels in so that you have eight

divisions in the pan. When that is ready you can put a number on the side of the pan in pencil, and keep a book with all the numbers and names of the plants. A number can go through life with you for a certain plant, whatever name you have got for it. If you have that number on the back of your label, you are sure where it came from, and your book will show you the seed and the date when you sowed it. If you have a large seed tray it is possible to divide it up to take a lot, if you are only sowing a few kinds, but there may be many that need different treatment.

When you are going to sow you have to be very careful, as it is the easiest thing with a number of divisions to sow one or two seeds into the wrong compartment. The best way is to have a small white plate underneath the seed packet. Open the packet carefully, some are very flimsy. Always have a plate underneath and a teaspoon or dessertspoon to put them in. Never try to shake your seeds from the packet. It is all right with parsnips, but do not try it with cacti. If they get on the wrong side of the partition they will be named wrongly, and you will get into awful arguments, so see they are in the right compartment. Sprinkle the seed on the top and have done with it. Do not poke them in or cover them up. Whether they are tiny or big, put them on the top.

I sowed 14 seeds of *Euphorbia obesa* last year, and because they are large seed, as large as a grape pip, I pushed them into the soil, and nothing came up, though they were in a temperature of 70 degrees and in ideal conditions. As fast as I brought a seed to the top it germinated and grew. Sometimes they send out a tiny root on the top at first but they will send it down into the soil and grow. If anything has not grown properly drop a little sand on the top, but cactus seeds of all types and other succulents as well will germinate better if sprinkled on the top and not buried. Whatever you do, put them all on the top, and they should be lightly firmed. You can do that with the bottom of a test tube or glass phial. Do not transfer any to the next compartment.

The seeds are sown. Now to moisten. Some people stand them in water until it comes within 1" from the top, but there is the danger of washing out the goodness from the soil. If you have a very fine spray it is far safer to water from the top, and just give the one spray and leave for a short time, and then spray again. Cover those pans individually with a sheet of glass if they are cacti. If they are other succulents, Lithops, Mesems, etc., do not cover with glass. They might damp off. If you cover with glass they will germinate quickly, but once they are up they will damp off and you will find them black. So do not cover other succulents with glass. Have a frame all ready for these seed pans. I have one which is 6' x 18". It is made with two frames of wood about 1" square and on those frames are pairs of flat type nails, the width of a piece of glass apart. Slide glass, 6" deep between the nails on the bottom frame, fit top on, and you will find you have a wooden frame top and bottom and glass in between held with nails. The top is covered with sheets of glass in between held with nails. The top is covered with sheets of glass 18" x 12". Inside the frame I have a 6' tubular 360 watt heater. The heater is in a trough covered with a piece of aluminum sheeting, the pans standing on gravel on the top.

There is a thermostat set at 70 degrees. If you cannot fix it up do not sow yet, wait until April. Seventy degrees is an ideal temperature in which to raise cacti seeds. If you push it up to 80 degrees they will germinate, but they get lanky and weak. I do not like them to be over 70 to 75 degrees. Put the pans in the frame and cover each pan with a sheet of glass if cacti, but do not cover with individual pieces of glass if it is any of the Mesembryanthemums. You have your heating working, close the frame fairly well at first, but once they are coming up you have to watch

*ED. NOTE: In U. S. A. the following mixtures have been used: 5 parts sand, 2 parts sifted leafmold, 2 parts top soil, 1 part powdered charcoal.

them. If they are watered at the start, do not spray until they are up. You will be surprised how easily they germinate. You will see them on the top, and they will come up from 3 to 5 days. Some will perhaps take 10 days. You cannot lay down any hard and fast rules. At 70 degrees *Mammillarias* take 5-10 days, *Astrophytums* a week, *Cereus* a week. I have even germinated *Euphorbia obesa* in 3-4 days. The glass over the top will keep the moisture in, do not let them dry right out or they may get a check, but do not completely soak them. There is nothing will cause damping off quicker than a warm close temperature without any fresh air coming in.

So be careful about watering, they must have air, and once any seeds are up you must raise the glass slightly. Put a matchstick underneath, or slide the glass to one side, or remove the glass altogether if the seedlings are well up. Once those seeds are coming up do not allow them to keep close and moist, but do not allow them to dry out too much. I water them with a fine type spray every day, and I have never had a lot of trouble. Give air after water, not steam.

At first they look like a tiny green ball, then the cactus proper grows on the top, the spines form, feed on the food box and gradually develop into the cactus plant. Unless you are pushed for space, and find that the plants are really overcrowded, do not try to move them too quickly. From some of those quarter pans I have picked 150 plants, and each was a little cactus plant with spines that you can handle safely. You can get well over 100 in one of those quarter pans. If you try and move many of these too quickly, unless you are very careful, you will have losses. The juncture of the root part with the body part is very tender. They are really murdered at that stage if you try to plant them. Some people use a stick and life up the soil as well, but where is the object in running the risk of moving them so soon? Better to let them grow into little cactus plants before you lift them. They seem to do better when they are fairly crowded than when separate. When you think they are big enough to handle, and too crowded, prepare to move them. Some that should be round will be square, and almost triangular, but in a month or so they will swell out.

I do not advise pricking them out into the ordinary potting soil which I always recommend, as it is rather on the coarse side. It has granulated charcoal and broken brick in it, which might break the seedlings. Prick them out in J. I. seed compost to which is added a little nourishment. J. I. seed compost is not intended to last these plants very long. There is the food value to make good. You have the same formula as you have for the J. I. potting compost, but the amounts are different. The potting compost is 7 parts loam, 3 of peat, 2 of sand. The seed compost is 2 of loam, 1 of peat, 1 of sand. To every bushel there is 3 to 4 ounces chalk or lime, 1½ ounces super phosphate. To that add 1½ ounces hoof and horn grist and 3 to 4 ounces of sulphate of potash. This is an ideal food mixture for those seedlings and not as coarse as the potting compost.

To sterilize the soil is a great art; if it is cooked too much it is overdone and of no use, so it is better if you can get it from a reputable firm. It is their business to sterilize these things, and that is half the battle, and it will be cheaper to buy the prepared article from a good nurseryman.

Have a good tray and get your potting mixture laid out, spray and sprinkle and mix it a bit. Some of it will be wet and some dry, so get it well worked out so you have that uniform moisture all through. Once seedlings are potted up into that moisture, do not water again. Pot up in a little pot. Many years ago I used to get 1", 1½" and 1¼" pots. These are of no use at all, I do not believe in this business of cram-

ming a cactus into the smallest pot you can get it in. That went out with the "Ark." There are "pen" gardeners and hard working gardeners. The "pen" gardener does not speak from experience. He says "Cacti have got to be put into tiny pots." "They will not flower until they are potbound." "One third of the pot must be drainage." Books and articles are still being published by these people. You will never get a plant to grow like that in 3 to 4 years. If you want your plants to flower and grow spines they have got to have something decent to grow in. You can have two greenhouses under two different gardeners with the same plants, one will get flowers and spines and the other will not. Sometimes people ask me what a plant is, and I say "Well, it's either a badly grown so and so, or something else." The whole nature of the plant is altered by the way it is grown.

I repot all my cacti once a year, but the seedlings may be moved in about July or August. I have yet to be convinced that any cactus twelve months in a pot with frequent waterings has anything left in the soil, they must have something to grow in.

What water do they get? The centre must be damp, nobody can grow cacti unless they know how to water, when to water, when not to water. Never water them when they are wet, but when you water them, then *do* water them. Do not give them a half-teaspoonful. The soil wants to be moist. Give them a drink, go back again and see that the whole of the soil is moist. Do not water anymore until the soil has dried out. When you start with a good watering and then give water again before they are dry, you get trouble. Give the plants a good drink while you are about it. The best time to see whether they are dry is in the morning, the soil on the top of the pot can get bone dry in the sun, so wait until morning, when the soil is uniformly wet or dry, and you can tell whether the plant wants water or not. On a warm evening, spray and close the house down, the plants thrive on it. You will never get the plants to grow and flower well, without you do water correctly, and give them something to grow in.

The whole idea of watering, by any gardener with potted plants, is guided by the appearance of the leaves, he can see at a glance that a plant wants watering. The good gardener always tells by looking at his plants, the leaves, that is the whole sign. With cacti there are no leaves, and the texture of the plant will not show good or bad treatment as quickly as a leaf, therefore it is more difficult to know when a cactus wants watering.

The John Innes Potting Soil is good, but not intended to last the plant for a long time. If you want a plant to grow on, you can feed it about every 10 days with a liquid fertilizer. You can water with the John Innes fertilizer, a teaspoonful to the gallon, but only use it once in 10 days. As a rule 90% of people overdo fertilizers in potted plants, and they sour the soil. It is not like leaving the fertilizer in the ground. In the pots it does not get away, and plants require so little. Never go above what the distributors recommend.

I have never found any need to use fertilizers, if I get a plant to flowering size, all right. I do not want footballs, and I do not want them to be out of proportion. I want to keep the shape and strength and colour of the spines. In the potting soil is the hoof and horn grist, and the superphosphate and the sulphate of potash, also there is the mineral content of the loam. Loam as we like to find it, is not just turf it is the top-spit of a standing meadow. The trouble to-day is that most people seem to get loam after the best part is gone. The nurseryman buys the next spit, so he has not all the beautiful richness of the top. A little clay is good in the loam, and loam should contain all those minerals, which are good for the plants.

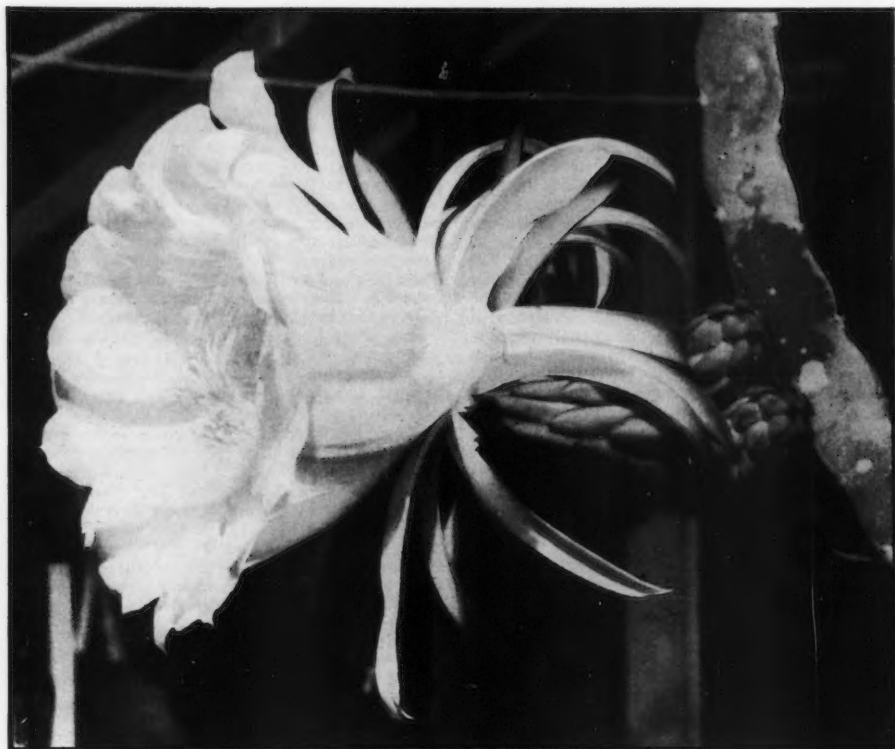
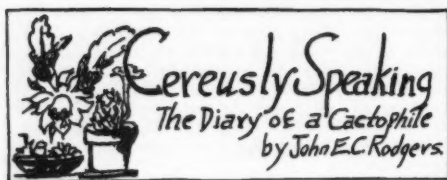


FIG. 83. *Hylocereus bronxensis* flowered by Laval Goulet in Canada.



The winter and part of the spring is past and it finds me with my usual problem—what shall I write about? Shall it be based on your letters you've written in the past year, my diaries, or a combination of my cactophilic visits, reading and observations? It has always been a pleasure to write this column because of the fine cooperation received from our editor, the society members and the cactophiles outside the ranks here and abroad.

This year I supplemented the daylight with the use of a 300 watt electric light for 2½ hours each morning. I began when the plants began to show new growth which occurs here about mid-January. I have gone on the assumption that Epiphyllums, Rhipsalis, Parodias, Rebutias, Echinopses, etc., are long day plants, since most of the plants I own are Mexican, Central American, Caribbean Island and South American in origin. My second assumption is that these plants can stand more light than our Great Lakes region gives if the plants are not longer day plants. My observations in past years were made by extending the daylight hours by two hours in the morning and two hours after dark. This proved of benefit to the

plants at that time and I've repeated some of my observations in the past. With the morning schedule of lighting there are certain conclusions to be drawn which are not conclusive, however, for me.

An extended lighting program may induce more blooms to open as much as three to five weeks ahead of past records. The danger is that the buds often abort if too much heat and water are given at the time. Coolness is part of the treatment. I would be more than pleased if I could get my *Hylocereus*, *Selenicereus*, *Weberocereus* and other vining types to set buds earlier and get flowers before the heat actually hits here in mid-June. There is a heavy loss of buds on most of these plants if the heat hits earlier than usual since these plants must remain in my greenhouse because of their size. At the present writing there is no indication that my lighting program has helped the vining types. Most plants of the globular types seem to set their buds during the previous year's growing season. I have cut a cross section from a *Rebutia* and found the buds at the areole developing even before the color shows (which I usually look for) and protected by the spines and tiny hair-like growth about it even in the late December.

Some plants grow out at the center before the buds show. This type is helped by extra light if the plant is not rushed into rapid growth by over-watering and hot, humid air. Good circulation of air seems to keep the buds developing.

Light and the length of day is important but the slant of the sun's rays undoubtedly is the chief factor in the problem. Every 75 miles one goes south means spring is a week earlier in our north temperate zone.

Artificial light merely moves the sun closer as if it were earlier. Extra light stimulates some shy-blooming types to put out flowers but it also may be their year to bloom so it will take several seasons to be conclusive scientifically. Sunshine, "vintage rains," and other unpounderable variables are also at work.

I have carefully checked my blooming records for Rebutias, early flowering Epiphyllums, Orchid Cactus, Chiapiasea nelsonii and several Mammillarias which were under or beside the light within three to five feet. They have bloomed from three to five weeks earlier than the years between 1950 and 1954. Some plants within these limits bloomed the same time, some within two to five days earlier, and there are some that are blooming two weeks later than other years. Since my notes show that my plants were outside under the grape arbor until October 22 to 30, 1954, and were soaking wet for two weeks or more from cold rains before storage, I'm not going to claim the lights were responsible nor will I claim the weather helped to give them a good start for winter storage and spring blooming. Whatever the reason I've had more plants bloom and more blooms in the first four months of 1955 than in 1954 and that was a record year for me.

If my surmise is correct I should be able to have plants bloom earlier throughout the summer and fall than in previous years. It does not matter if a plant blooms or not when it's old enough I've heard Cactophiles say but I feel duty-bound to get blooming-size plants to flower when it's possible. A shy flowering plant in a collection is not always a shy bloomer in the wild then it should follow that I'm at fault in my cultural methods (my greenhouse exposure watering, heating, ventilating, etc.). I have shabby looking plants the same as other growers, col-

lectors and even nature has. I've been able to grow some difficult types by better growing methods. It takes study and more study from available books, personal observation and newer types of culture if one expects to be successful.

For those of you who wrote to me about the plant I described in the November-December, 1954, No. 4, CACTUS JOURNAL, pg. 183, under the name "*Crassula alba*" I advise you to read the article "*Winter Blooming Crassulas*" by E. Brown in the March-April, 1955, Number 2, pg. 57. It contains a picture (Figure 52) of this plant. It is *Crassula lactea*. Under the picture it said, "Reprinted from Volume II, CACTUS JOURNAL. Hoping I could find more I got out my Volume II, pg. 264 (Index) and found "Into the next group, lactea, are placed *C. lactea* Soland. and *C. multacava* Lem. (*C. quadrifida* Baker." I'm glad E. Brown wrote this article as I got my plant labelled *C. alba*. "*Alba*" in Latin means "white" and "*Lactea*" is the Latin for milk which again means white here also, as the *Crassula* does not have a milky sap nor are the markings along the edge of the leaf sufficient to merit *alba* or *lactea* must refer to the white flowers.

The crepe hangers are already at work around here and in other places I get letters from. They warn that El Paso is too hot in July for our next Convention. I tell them that where ever I go the weather is never the same as it was the week previous or will be the week afterwards when I leave. Cool in 1941 in St. Louis, Cool in Cincinnati in 1947, Cool enough in Phoenix in 1949, Cool and rainy in December, 1951, and comfortable in Los Angeles in 1953. Each time the weather-wise advised me not to go because of the heat—I went, I stayed and I came back unconvinced that it was hot where I was in July. I'll be in El Paso July 8-12 and so will the other members of the clan.

Hairy Cereii

By JOHN AKERS

From "Cactus Chronicle" bulletin for Los Angeles Cactus and Succulent Society.

Just the fact that a cactus may be hairy or bristly does not indicate that it belongs to any specific genus, because hairy cacti may occur in many different genera. Neither does the word "hairy" indicate any particular type of growth, for it may be used to describe anything from wiry bristles to silky or cottony hairs.

If we want to be more technical, bristles are apt to be stiff and wiry, while hairs are softer and more flexible. The easiest was to tell that the growth is not spiny, but hairy or bristly, is by feel—you cannot get stuck on the latter. A word of caution might not be amiss—rarely is a cactus completely devoid of spines, even though hairs or bristles may be predominant.

What is the purpose of the hairs, outside of enhancing the beauty of the plants? They certainly do not offer frost protection, as the hairy types may grow in the temperate zones, and usually are the first to freeze. The hairs offer next lining material for small birds such as hummers. Perhaps the hairs or bristles correspond to the fancy plumage found on birds of paradise, and are only useful for adornment.

Where do we find hairs or bristles? They grow from the areoles as does everything else,

and they are concentrated at the top of the plants. Hairs and bristles are less rugged than spines and do not persist as long. It is not uncommon to find plants such as the "old man cactus," *Cephalocereus senilis*, completely devoid of bristly hairs a short distance from the top of the plants.

Occasionally, the amount or type of the hairs or bristles increases remarkably at the apex. Out of this growth appears the flowers and fruits. This growth may be quite different in character from the type of hairs or bristles found on the branches, and has been designated as a Cephalium (meaning head growth). Many times a growth along the sides, or more usually, along one side, is wrongly called a lateral cephalium, but as it has been shown, a cephalium can only occur at the top. However, as long as botanists have not coined a simple term to be used for this type of growth, it will probably still be called a cephalium. Perhaps the term Lateral Pseudo-cephalium would be a better word to use.

Some genera have only a few hairy species, while others contain nearly all hairy plants. There are hairy plants found in all 3 cactus tribes, but mainly in the tribe Cereae. Again, in the subtribes of the Cereae we find hairy plants in nearly all of them.

In the subtribe Cereanae we find the following conditions:

GENUS	HAIRY	BRISTLY	CEPHALIUM	LAT. PSEUD. CEPH.
<i>Cereus</i>	A few	No	No	No
<i>Monvillea</i>	No	No	No	No
<i>Cephalocereus</i>	Yes	Yes	Yes	No
<i>Pilocereus</i>	Yes	No	No	Yes
<i>Espostoa</i>	Yes	No	No	Yes
<i>Browningia</i>	No	No	No	No
<i>Stetsonia</i>	No	No	No	No
<i>Escontria</i>	No	No	No	No
<i>Azureocereus</i>	No	1	No	No
<i>Corryocactus</i>	No	No	No	No
<i>Pachycereus</i>	1 or more	A few	No	No
<i>Leptocereus</i>	No	No	No	No
<i>Lemaireocereus</i>	No	No	No	No
<i>Armatocereus</i>	No	No	No	No
<i>Erdissia</i>	No	Some	No	No
<i>Arrojadoa</i>	No	Some	No	No
<i>Bergeocereus</i>	No	Yes	No	No
<i>Leocereus</i>	No	No	No	No
<i>Wilcoxia</i>	Somewhat	No	No	No
<i>Peniocereus</i>	No	No	No	No
<i>Dendrocereus</i>	No	No	No	No
<i>Machaerocereus</i>	No	No	No	No
<i>Nyctocereus</i>	No	No	No	No
<i>Brachycereus</i>	No	No	No	No
<i>Acanthocereus</i>	No	No	No	No
<i>Heliocereus</i>	No	No	No	No
<i>Trichocereus</i>	Some	No	No	No
<i>Jasminocereus</i>	No	No	No	No
<i>Harrisia</i>	No	No	No	No
<i>Eriocereus</i>	No	No	No	No
<i>Borziacactus</i>	A few slightly	No	No	No
<i>Loxanthocereus</i>	No	Yes	No	No
<i>Seticereus</i>	No	Yes	Yes	No
<i>Carnegiea</i>	No	No	No	No
<i>Neobuxbaumia</i>	Some	No	No	No
<i>Haageocereus</i>	No	2	No	No
<i>Peruvocereus</i>	3	Mostly	No	No
<i>Cleistocactus</i>	No	Some	No	No
<i>Trixanthocereus</i>	No	Yes	No	Yes
<i>Facheiroa</i>	No	Somewhat	No	No
<i>Oreocereus</i>	Yes	No	No	No
<i>Morawetzia</i>	Yes	Somewhat	Yes	No
<i>Rathbunia</i>	No	No	No	No
<i>Zehntnerella</i>	Sparsely	No	No	No
<i>Lophocereus</i>	No	No	No	Yes
<i>Myrtillocereus</i>	No	No	No	No
<i>Neoraimondia</i>	No	No	No	No

So, if we wished to collect the hairy or bristly Cereii, we would choose the following genera:

HAIRY

Espostoa (all hairy).
Oreocereus (nearly all hairy).
Morawetzia (hairy).
Cephalocereus (many are hairy).
Pilocereus (many are hairy).
Peruvocereus (at least 3 sp.).

BRISTLY

Peruvocereus (very colorful).
Cephalocereus (*senilis* and *Hoppenstedtii*).

Cleistocactus (several very colorful).
Loxanthocereus (several very choice).

Some *Espostoas* are available and many of the *Cephalocereus*—*Pilocereus* group. *Oreocereus*, *Morawetzia*, *Cleistocactus* and *Peruvocereus* are available to grow. The easiest hairy cereus to grow is *Pilocereus palmeri*, but both *P. glaucophorus* and *P. purpusii* will also bloom when quite young. The latter are reasonably small plants.

Succulents Other than Cacti

By W. CLARK

Continued from Vol. XXIII, No. 6, pg. 192.

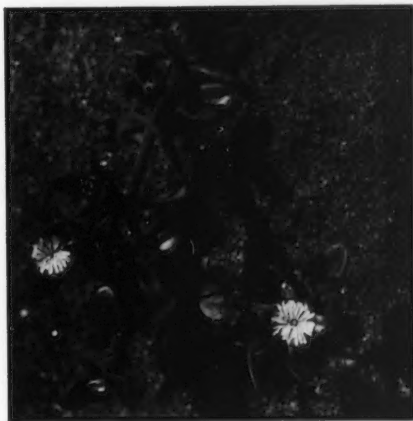


FIG. 84. *Aptenia cordifolia* was photographed by James West in 1932 as a little known succulent.



FIG. 85. A 200-pound plant of *Aptenia cordifolia* was removed from your editor's garden. At one time this was a rare plant.

THE FIG MARIGOLDS

Another class of plants which will prove very interesting indeed, are the Fig Marigolds (*Mesembryanthemum*). The leaves of the various species assume very peculiar shapes and the color varies from a light glaucous green to very dark green. Some of the species flower freely, e. g., *Cephalophyllum tricolorum* annual.

M. codifolium var. *variegatum* is a half hardy variegated form which is well worth growing as an edging for beds in summer or for rockeries (now called *Aptenia*).

ECHEVERIA

Another interesting plant which I like to grow is *Cotyledon gibbiflora* var. *metallica* now known by the florists as *Echeveria metallica*. It has some curiously shaped flowers which are



FIG. 86. *Echeveria fimbriata* used to be one of our common winter flowering plants.



FIG. 87. "Hen and Chickens," *Sempervivum calcaratum* is a hardy succulent.



FIG. 88. The "Cob-web Houseleek," *Sempervivum arachnoideum*, makes a fine pot plant.

interesting but not showy. Its interest lies in its beautiful glaucous purple obovate-spatulate leaves which are sometimes six inches wide and seven inches long; also it forms a big rosette. One plant is enough in a collection. If you wish more, break off a leaf at the joint and put it in sand; in a few weeks a bud will develop at the base. I have, however, seen leaves that failed to make a bud. They continued for three or four years to exist simply as rooted leaves.

A good many Cotyledons are used during the summer for carpet bedding, but perhaps the commonest is *E. secunda* var. *glauca*. This plant is about three inches in diameter and one or two inches high; the flower stalks are always kept pinched out when used as a bedding plant for the flowers are not spectacular.

SEDUMS

There are a great many Sedums and they are very interesting plants too. The showy Sedum (*S. spectabile*) can be successfully grown outdoors as well as in the house. The commonest Sedum, however, is the Stonecrop (*S. acre*). This is an evergreen and may be used as a hanging plant for the stems will hang down over the sides of the pot, or it may be used to fill a window box. I have seen it used thus and stay out-

doors permanently. The leaves are very small (one-quarter of an inch long), but they are crowded closely together on the stems. The foliage is a delightfully bright green and in the variety *aureum*, the shoots are bright golden yellow in the spring; in the variety *elegans*, the tips and young leaves are a pale silvery color.

HOUSELEEKES

The Houseleeks (*Sempervivum*), are very similar to the Sedums. The commonest ones are the common houseleek (*S. tectorum*), and Hen

and Chickens (*S. calcareum*). Like the Sedums these are best grown in boxes, but the plants must not be allowed to grow too thickly or they won't flower.

The most interesting one and, perhaps, the best for house culture, is the spider-weg Houseleek (*S. arachnoideum*). The leaves, which are short and fat, are borne in rosettes and between the tips of the leaves there are fine, white threads like a spider's web. The flowers are bright red and borne on stalks three to five inches high.

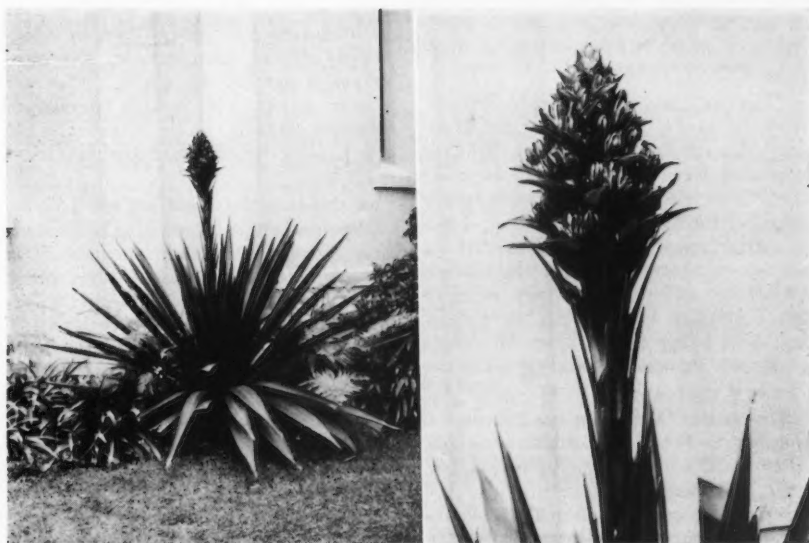


FIG. 126. Spear Lily (*Doryanthes Palmeri* W. Hill)

AUSTRALIAN COUNTERPART OF THE AMERICAN AGAVE AND FURCRAEA

WILLIAM HERTRICH

From *Lasca Leaves*, Vol. IV, No. 4, Journal of the California Arboretum and Southern California Horticultural Institute.

The language of ancient Greece provides derivation of the generic name of our subject, *Doryanthes Palmeri* W. Hill (*Dory*, "spear," *anthos*, "flower"), known by poetic license as Spear-Lily. New world Australia is the native habitat. *Doryanthes Palmeri* belongs to the Amaryllis family (*Amaryllidaceae*) and is related to *Furcraeas* and *Beschnerias*, many species of which are grown in the Hunt-

ington Botanical Gardens. *D. Palmeri* is indigenous to Australia, and was flowered for the first time as a cultivated plant, in the Botanical Garden at Brisbane, in September, 1870. According to information available, Mr. Walter Hill, Superintendent of the Brisbane Garden, discovered the plant on one of his botanical exploration trips in the year 1860 near Moreton Bay, Queensland.

Another species, *D. excelso* Correa, less spectacular than *D. Palmeri*, preceded the former into cultivation, and was first described and illustrated in *Curtis Botanical Magazine*, t. 1685, recorded as first flowering in 1814. At the time of the flowering of this prototype, *D. excelso*, in Kew Gardens, it caused considerable notice when producing a scarlet flower at the terminal of a flower stem without roots. The stalk had been sent to Kew from "New Holland"—former name of Australia—in cut form many months before. This demonstrates the tenacity of the stock of the plant to retain life under most adverse conditions. A parallel case of such an instance is cited with regard to *Yucca (filifera) australis*, *Curtis Botanical Magazine*, t. 7197, 1891:

"The trunk was sent to Kew in October, 1888, by Mr. C. G. Pringle from Monterey, through Professor Sargent. When it arrived at Kew, it appeared to be quite dead, and the trunk was consequently placed in the Museum of Economic Botany. After remaining there two years it put out rudimentary leaves and an inflorescence, and on being transferred to the Temperate House these were fully developed in September, 1890. The leaves are shorter than in the wild type and the panicle is erect and less dense."

The species *D. Palmeri* has been in the Huntington Botanical Gardens for about thirty years, and during that period frequent blooming has occurred. Like the *Furcraeas*, *Doryanthes* dies after blooming, but because the plants usually produce sucker growth before flowering, though only occasionally in the last year of its existence, propagation may be carried on by means of these young shoots, which can be easily detached from the mother stock. In turn the sucker shoots develop and produce flowers in the course of a few years. The plant itself forms a rosette of about one hundred leaves: of a good green color, surfaces ribbed, flexible, about three to five feet long by four to five inches maximum width, tapering from the center toward both ends, margins

smooth, no end spines.

The stock supporting the cluster of flowers reaches a height of from six to nine feet and is three to four inches thick. The crimson flowers, white within, form a rather compact inflorescence, and are visited by numerous humming-birds for the nectar. The blooming season lasts about two months. The plant is of considerable value in landscape work, in grouping with other foliage plants, or as single specimens, being especially attractive for patio plantings.

In southern California, *Doryanthes* grows well in various types of soil, and under various exposures. In the interior sections, subject to heavy frosts, or in extremely dry and warm localities, some protection is needed. It is a fact that soil rich in humus and fertility encourages luxuriant growth, leaves become longer and slightly broader and perhaps more numerous.

A third species, *D. Guilfoylei*, F. M. Bailey, perhaps a form of *D. Palmeri*, from North Queensland, known there as Queensland Lily, is described as being larger than the former, producing leaves up to nine feet long, flowers a rich crimson, to four inches long, and yielding a good fibre from its leaves.

References to these several plants, in addition to those cited above, may be found as follows:

D. Palmeri, *Curtis Botanical Magazine*, t. 6665, 1883: detailed description, references to other works, double page illustration.

D. Palmeri, *Desert*. 1931. Cover illustration and reference, p. 8.

D. Palmeri, *Gardeners' Chronicle*, NS Vol. I, Feb. 7, 1874, p. 181, figs. 44, 45.

D. excelsa, var. *Guilfoylei*, *Gardeners' Chronicle*, Vol. XLV. Part I, June 12, 1909, p. 384, fig. 168, showing an inflorescence more like that of *D. Palmeri* than of *D. excelsa*. Leaves in this illustration—i.e. fig. 168,—also appear to be slightly ribbed, although the description does not mention the fact.



SPINE CHATS

LADISLAV CUTAK



Have you noticed how well cactus plants flowered this spring? Many of the Henry Shaw Cactus Society members have been reporting abundance of blooms on their plants and even at Shaw's Garden a goodly number of potted cacti responded in greater numbers than in other years. I've been busy with the camera recording the magnificent blossoms of the cacti and have added quite a few color slides to my extensive collection this year.

Howard Gates sent me a nice collection of miscellaneous cacti earlier in the year and among the lot, *Mammillaria blossfeldiana*, has produced blooms constantly for several weeks. In my estimation this is one of the finest *Mammillarias* in existence. The flowers are rather large and colorful, lasting for several days. I first fell in love with this plant when I saw pot after pot displaying gorgeous bloom at Gates nursery in Corona (California) two years ago. The small globose heads filled each pot, for the cactus freely clusters producing shoots from the base as well as the sides. The short conic grayish-green tubercles are surmounted by small areoles from which issue whitish radial spines and nearly blackish centrals, imparting a sort of smoky appearance to the whole plant. The slightly fragrant flowers are produced copiously just below the apical portion and last several days. The petals exhibit a most beautiful purple shade which is accented by the narrow white margins making the flower really attractive. The chartreuse green stigma lobes radiating from the top of a rose pink style which is surrounded by pinkish filaments with orange yellow anthers adds distinction. *Mammillarias* are all nice plants but if you are looking for something very eye-appealing, take my tip and get yourself a *Mammillaria blossfeldiana*. This outstanding pincushion hails from Baja California.

While discussing free blooming cacti, don't overlook *Notocactus apricus*. It should belong in your collection, if you don't have it now. The hemispheric body is sunken at the apex where the large yellow flowers appear and flare out like an umbrella over the plant. The low, slightly spiraling ribs are somewhat tuberculate below the areoles, from which fourteen bristle-like, curving, yellowish-white radial spines emanate with four twisting and curving longer centrals. The central spines at first are reddish brown but later turn to greyish-white. The large flowers of silky pale yellow color are three inches broad and from out the center of each protrudes a style with 14 red stigma lobes. *Notocactus apricus* in flower is a fitting subject for the photographer and an especially dramatic picture will be gotten if back lighting is used.

Two young men frequently were seen in Shaw's Garden, particularly spending a great deal of time in the two desert houses. I got to know these two gentlemen and found out that one of them was a member of the cactus society and a reader of my column. Louis Simon, whose home is in Laurelton, Long Island, has been with the St. Louis Symphony Orchestra for two years and his buddy, John Rublowsky, from Brooklyn four years. Both are violinists. The Symphony, as you may know, makes a regular tour to various parts of the country and in off-season the members get various other jobs around the country, giving them ample opportunity for more than average travel. Louis Simon dates the beginning of his interest in succulents to childhood days when he bought a tiny *Euphorbia splendens* at the dime store. What at first looked to him as a thorny twig and then surprisingly began to produce fresh green leaves and lively red flowers amazed him greatly. A few visits to botanical gardens housing succulents made him realize the vitality and strength of these plants, as well as their subtle colors and tremendous variety of forms. Soon after, noticing an ad for 20 succulents for One Dollar, he started his collection. Now he owns around 150 species and he prefers *Euphorbias* to anything else.

John Rublowsky mentioned to me that three main reasons are responsible for his interest in cacti. The first is travel, which gave him opportunities to visit cacti in their natural state; the second in his colleague, Louis Simon, who used to point out the various specimens to him and explain something of their fascinating nature; and third the displays in Shaw's Garden where two wings of the main conservatory are devoted to these plants. In this way his interest in cacti was stimulated and before long he began to grow them.

Both of these fellows are nature lovers. Simon used to be in the animal import business and was particularly fond of butterflies as well as other entomological subjects. He also paints. Rublowsky was always fascinated by nature in a general way, showing interest in plants, animals, stars, the sea and everything of that kind. It is only lately that he began to specialize in cacti.

* * *

Mr. E. Shurly, England's *Mammillaria* expert and editor of the Journal of the Cactus and Succulent Society of Great Britain, has published an interesting pamphlet of 44 pages, called "How to Grow Cacti and Succulents" which sells for one shilling. The booklet is intended for the beginner and was especially written to encourage interest in these very beautiful and intriguing plants, as well as to suggest becoming a member of the British society. There are 36 illustrations included, showing a variety of cacti and succulents in flower which should give the beginner an idea what plants to choose. There are also several pages of advertisements of British firms, chiefly to enable the reader to learn where a wider range of cacti and succulents can be obtained in the British Isles.

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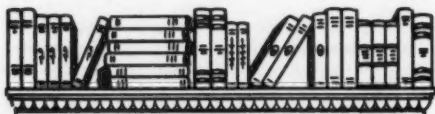
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the best results for him. This booklet is solely for the beginner and there is little wonder that it is now on its second edition of 10,000 copies each. This booklet is illustrated with 36 fine photos and is not to be confused with Haselton's booklet of similar title "Cacti and Succulents and How to Grow Them." This 44 page booklet is available for 25c from Abbey Garden Press, 132 W. Union St., Pasadena 1, California.

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